



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,882	12/02/2003	Yoshihiro Uetani	Q78640	1657
23373	7590	01/11/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			DESAI, ANISH P	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,882

Applicant(s)

UETANI ET AL.

Examiner

Anish Desai

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/02/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The Applicant's arguments in response to the Office action dated 08/12/05 have been fully considered.
2. The objection over Information Disclosure Statement (IDS) submitted on 12/02/03 has been withdrawn in view of applicant's amendments and response (see page 6 of the amendments received on 10/26/05).
3. The art rejection of Yuji et al. (Japanese Patent Publication No. 2002-110245) has been withdrawn. However, upon further consideration, a new ground of rejection has been made over Yuji et al. (Japanese Patent Publication No. 2002-110245).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuji et al. (Japanese Patent Publication No. 2002-110245) in view of Nagou et al. (US 5,238,735).

Yuji et al. teach a lithium ion secondary battery which uses a solid polymer electrolyte (see Abstract, page 6) and a liquid crosslinkable composition for the solid electrolyte (Paragraph [001], page 15). The liquid crosslinkable composition for the solid electrolytes comprises radically polymerizable monomers of oxetane ring

Art Unit: 1771

containing monomer and epoxy group containing monomer (Paragraph [0011], Page 24). Moreover Yuji et al. teach a battery separator (Paragraph [004]). Additionally, Yuji et al. teach that the liquid crosslinkable composition containing oxetane group and epoxy group is injected into the airtight container, which has units such as electrodes and separator (Paragraph [0020], pages 32 and 33). The liquid composition infiltrates into gaps such as electrode and a separator. Regarding claim 2, the oxetane ring containing monomer of Yuji et al. contains 3-oxetanyl group (Paragraph [0013], page 25). With respect to claim 3, the liquid crosslinkable composition contains the other radically polymerizable monomer (Claim 2, page 7). Regarding claim 4, Yuji et al. teach that the quantity of the radically polymerizable monomer with oxetane ring and another radically polymerizable monomer is 5 to 50% by weight (Claims 2 and 3, Page 7). With respect to claim 5, Yuji et al. disclose that the quantity of the radically polymerizable monomer having epoxy group and the other radically polymerizable monomer is 5 to 50% by weight (claims 4 and 5, page 8). Regarding claims 6 and 7, Yuji et al. teach the claimed 3-oxetanyl group containing (meth) acrylate formula (I) on page 25 and claimed epoxy group containing (meth) acrylate formula (II) on pages 26 and 27 respectively. Regarding claim 8, Yuji et al. teach the claimed formula III and IV on Pages 27 and 28.

Yuji et al. are silent as to teaching the porous film with a porosity of 20-95% and a thickness of 3-50 μm . However, Nagou et al. teach a microporous shaped articles such as microporous films that can be used as battery separators (Column 1, lines 9-11). The microporous films of Nagou et al. exhibit highest performance as battery separators (Column 5, lines 9-10) and have improved mechanical strength (Column 7,

Art Unit: 1771

line 59). The porosity and the thickness of the microporous film of Nagou et al. are from 20 to 90% (Column 1, lines 57-58) and 5 to 200 μm (Column 5, lines 54-55) respectively. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the microporous film of Nagou et al. with the porosity of 20 to 90% and thickness of 5 to 200 μm as a battery separator in the lithium ion secondary battery of Yuji et al., motivated by the desire to provide a battery separator with improved mechanical strength.

Response to Arguments

5. Applicant's arguments see pages 6-8, filed on 10/26/05, with respect to claims 1-9 have been fully considered and are persuasive.
6. The objection over Information Disclosure Statement (IDS) submitted on 12/02/03 have been withdrawn in view of applicant's amendments and response (see page 6 of the amendments and response received on 10/26/05).
7. The art rejection of Yuji et al. (Japanese Patent Publication No. 2002-110245) has been withdrawn because Yuji et al. do not teach a porous film with the porosity of from 20-95%.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

APD

Haivo

**HAIVO
PRIMARY EXAMINER**